USDA
NATURAL RESOURCES
CONSERVATION SERVICE

MARYLAND CONSERVATION
PRACTICE STANDARD

WATER WELL

CODE 642
(Reported by No.)

DEFINITION

A hole drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer.

PURPOSES

To provide water for livestock, wildlife, irrigation, human, and other uses.

To provide for general water needs of farming/ranching operations.

To facilitate proper use of vegetation on rangeland, pastures, and wildlife areas.

CONDITIONS WHERE PRACTICE APPLIES

On all land uses where the underground supply of water is sufficient in quantity and quality for the intended purpose.

This practice standard applies only to production wells. Specifically excluded are any types of wells installed solely for monitoring or observation purposes; injection wells; and piezometers. The standard does not apply to pumps installed in wells; above ground installations, such as pumping plants, pipelines, and tanks; temporary test wells; and decommissioning of wells (ASTM D 5299).

CONSIDERATIONS

The potential for adverse interference with existing nearby production wells needs to be evaluated in planning.

The potential for ground water overdraft and the long-term safe yield of the aquifer needs to be considered in planning.

If practicable, wells should be located in higher ground and up gradient from sources of contamination or flooding.

Potential effects of installation and operation of the well on cultural, historical, archeological, or scientific resources at or near the site need to be considered in planning.

CRITERIA

Suitability of Site

Determine the availability of ground water at the site by using reliable local experience and reviewing all available relevant geologic maps and reports; well records maintained by state and federal agencies; and design, construction, and maintenance records of nearby wells. An appropriate level of investigation, including test well drilling, is conducted on-site, as needed, prior to well construction to determine site-specific hydrogeologic conditions.

The site must be suitable for safe operation of the drilling equipment.

Permits

Well installations require authorization from Maryland Department of the Environment under COMAR 26.04.04, Well Construction Regulations. Construct wells in accordance with these regulations. Upon completion of a well, a Well Completion Report must be completed by the well installer. A copy of this report must be maintained in the landowner's case file. Follow all other local, state, and federal laws as they apply.

COMAR regulations are available online at www.dsd.state.md.us/.

Well Head Protection

Locate wells a safe distances from potential sources of pollution, including unsealed aban

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

doned wells. Base allowable distances on site-specific hydrogeologic factors and comply with requirements of all applicable state or local regulations or construction codes.

Divert potentially contaminated surface runoff and drainage away from the wellhead.

Wells must be located a safe distance from both overhead and underground utility lines and other safety hazards.

Installation

Install wells in accordance with Maryland Department of the Environment under COMAR 26.04.04, Well Construction Regulations.

All wells must be cased to a sufficient height (minimum of 12 inches) above the ground surface to prevent entry of surface and near-surface water.

Casings - Install Casings in a manner to seal out undesirable surface or shallow ground water and to support the side of the hole through unstable earth materials. The intake portion of a well through stable geologic formations may not require casing.

Size casing diameter to permit satisfactory installation and efficient operation of the pump.

Grouting and Sealing - Fill the annulus surrounding the permanent well casing at the upper terminus of the well with expansive hydraulic cement (ASTM C 845), shrinkage-compensating concrete, bentonite-based grout, clay, or other material with similar sealing properties as specified in state or locally applicable construction codes.

Disinfection - Disinfect wells immediately following their construction or repair to neutralize any contamination from equipment, material or surface drainage introduced during construction. Comply with all local or state requirements when disinfecting wells.

Water Quality Testing

Water quality is required for all wells used for human consumption and may be required for other uses as required by law. Sampling and testing must comply with all applicable federal, state, and local requirements. These requirements vary according to the water quality parameters associated with the intended use(s) of the water.

Vegetation

Use the Maryland conservation practice standard, Critical Area Planting, Code 342 to determine the appropriate grass species to be established based on site conditions and use. Plants listed on the Maryland noxious weed list must not be planted.

SPECIFICATIONS

Prepare plans and specifications for specific field sites in accordance with this standard and describe the requirements for applying the practice to achieve its intended uses.

The Well Completion Report documents details of the well installation and is considered appropriate documentation.

OPERATION AND MAINTENANCE

Prepare a written operation and maintenance plan for the well. Well construction records and the operation and maintenance plan will be kept in the owners case file. Include in the plan as a minimum, a statement of identified problems, corrective action taken, date, and specific capacity (yield per unit drawdown) of well before and after corrective action was taken.

SUPPORTING DATA AND DOCUMENTATION

Field Data and Survey Notes

The following is a list of the minimum data needed:

1. System plan sketch.
2. Special control or field features that must be considered in design.

Design Data

Record on appropriate engineering paper. For guidance on the preparation of engineering plans, see Chapter 5 of the Engineering Field Handbook, Part 650. The following is a list of the minimum required design data:

1. Plan view including all system components and construction specifications;
2. Copy of MDE well permit.
3. Job Class on plan.
4. Quantities Estimate.
5. Planting plan. This must meet the criteria, specifications, and documentation requirements of the Maryland conservation practice standard, Critical Area Planting, Code 342;
6. Written Operation and Maintenance Plan.

Construction Check Data/As-Built

Record on survey note paper, SCS-ENG-28, or other appropriate engineering paper. Survey data will be plotted on plans in red. The following is a list of minimum data needed for As-builts.

1. Documentation of site visits on CPA-6. Include the date, who performed the inspection, specifics as to what was inspected, all alternatives discussed, and decisions made and by whom;
2. Copy of Well permit and Well Completion Report.
3. Copy of water quality testing results, when applicable
4. Statement on site stabilization.
5. Final quantities;
6. Sign and date checknotes and plans to include statement that practice meet or exceed plans and NRCS practice standard.

REFERENCES

1. Code of Maryland Regulations, Title 26, Department of the Environment, Subtitle 04, *Regulation of Water Supply, Sewage Disposal and Solid Waste*, Chapter 04, Well Construction.
2. USDA, Natural Resources Conservation Service. *Conservation Practice Standard for Critical Area Planting, Code 342*. Maryland Field Office Technical Guide, Section IV.
3. USDA, Natural Resources Conservation Service. *National Handbook of Conservation Practices*.
4. USDA, Natural Resources Conservation Service. *Preparation of Engineering Plans.* Engineering Field Handbook, Chapter 5.